

Safeguarding the battery

The battery is a key element in UPS operation. If load is the most critical factor, battery system availability and efficiency are very important to avoid shutdown.

To meet both requirements fully, SOCOMEC has developed **BHC Universal** (Battery Health Check), a stand-alone battery monitoring system that provides **permanent monitoring** of the battery system and **simplifies maintenance** (either preventative or curative).

When connected to a Socomec UPS, it becomes **BHC Interactive** and interacts proactively with the battery charger, to **optimise battery lifetime**.

Have confidence in the battery system

BHC Universal continually provides accurate diagnosis of battery condition and generates warning messages.

- **Continual battery scanning and analysis:** one **BHC Universal** box can monitor up to 7 batteries of 8 strings. It scans the current per string, block voltages and ambient temperatures every 10 seconds, collecting data continually and performing accurate analysis for a complete diagnostic forecast of batteries, battery strings and battery blocks.

- **Local data monitoring:** thanks to the graphic touch screen and general status bar, **BHC Universal** allows a clear and ergonomic view of each battery diagnostic (i.e. condition, discharge, measurements, alerts, statistics, historical data, battery information). Information is displayed as coloured tables and can be easily sorted to display pertinent information.

- **Remote data monitoring:** **BHC Universal** can be connected to a LAN network allowing access to all functionalities and displaying information from a remote workstation.

- **Warning alerts:** depending on the battery condition analysis, **BHC Universal** automatically generates different alert levels (i.e. block preventive alerts, battery string preventive alerts, battery alerts, etc.). Alerts are displayed on the touch screen and sent to the user via notification and programmable dry contacts, allowing the scheduling of preventive maintenance.



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Your tool for > Battery health care



More efficient maintenance

BHC Universal helps maintenance engineers and technicians to plan and prepare targeted preventative and curative maintenance operations.

- **Locate weak blocks:** **BHC Universal** analyses the behaviour of each battery block or cell and highlights possible failures. Faulty blocks are shown in orange or red depending on criticality. Detection and location of weak blocks allows efficient preventive maintenance scheduling, reduces maintenance costs and avoids operation breakdown due to major internal battery failure.
- **Track battery life:** **BHC Universal** logs data in an internal database that stores more than 2 years of measurements. Voltages, currents and temperatures are

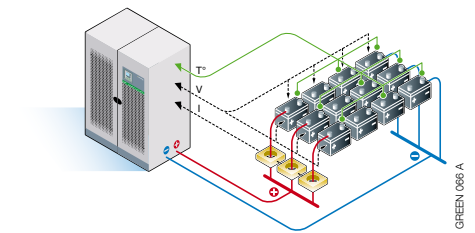
continuously logged in 10-minute steps, while battery and block diagnostics, alerts, statistics, historical data and maintenance dates are stored every 10 seconds during discharge.

- **Maintenance planning:** **BHC Universal** provides full database access (measurements, diagnostics, discharges, historical data, etc.) to plan maintenance operations.

Database samples can be extracted and managed on a spreadsheet to create graphs or reports.

For example, battery conditions between two dates can easily be compared, to prepare a list of blocks that need to be replaced, or to check string currents during discharge.

Continual battery scanning and analysis



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Warning alerts



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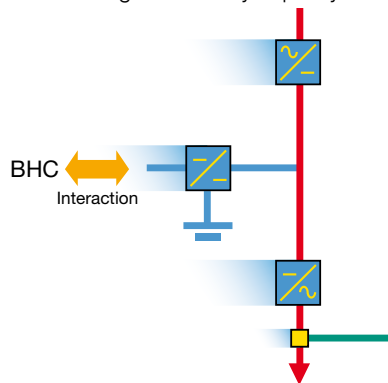
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BHC Interactive, to optimise battery lifetime

Including all the features of **BHC Universal**, **BHC Interactive** operates directly with the UPS battery recharging system (EBS). It optimises battery capacity and maximises battery life and return on investment.

- **Increase charger precision:** the UPS charger is able to adapt the recharge parameters according to all the information collected by **BHC Interactive**. Such corrective actions aim to standardise cell behaviour to improve battery lifetime.
- **Automatic battery testing:** when required, **BHC Interactive** and the UPS perform an automatic battery test. The UPS calibrates slow, safe discharge while **BHC Interactive** collects data and analyses cell blocks.

- **Proactive measures:** when a block starts to weaken, **BHC Interactive** and the UPS perform an automatic procedure to recover the block before it is totally unusable, and to enhance global battery capacity.



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Main features

	<i>BHC Universal</i>	<i>BHC Interactive</i>
UPS COMPATIBILITY		
DELPHYS MX 250-900 kVA	no	yes
DELPHYS Green Power 160-400 kVA	no	yes
MASTERYS Green power 100-120 kVA	yes	no
Other Socomec UPS	yes	no
Non-Socomec UPS	yes	no
MEASUREMENTS		
Voltage per string	per 12 V blocks	per 12 V blocks
Current per string	yes	yes
Battery ambient temperature	4 to 6 per string	4 to 6 per string
BATTERY		
Battery type	VRLA	VRLA
Number of batteries per BHC box	up to 7	up to 7
Number of strings per battery	1 to 8	1 to 8
CORE CONTROLLER		
Detection and localisation of failures	per block (12 V)	per block (12 V)
Interaction with the UPS	no	yes
Connectivity	connected to LAN	connected to UPS and to LAN